

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

DYNAENERGETICS EUROPE GMBH)	Civil Action
and DYNAENERGETICS US, INC.,)	
)	No. 6:21-cv-00349-ADA
Plaintiffs,)	
)	Judge Alan D. Albright
v.)	
)	
HORIZONTAL WIRELINE SERVICES,)	<u>Electronically Filed</u>
LLC and ALLIED WIRELINE SERVICES,)	
LLC,)	
)	
Defendants.)	

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

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A	U.S. Patent No. 10,844,697
B	Declaration of D. Nathan Meehan, Ph.D., P.E.
C	Declaration of John Rodgers, Ph.D. (PGR2021-00078)
D	Declaration of John Rodgers, Ph.D. (PGR2020-00080)
E	Declaration of John Rodgers, Ph.D. (No. 3-21-cv-00192-M, N.D. Tx.) (DEFENDANTS001338 – DEFENDANTS001379)
F	Definition of “Sub” (DEFENDANTS001273 – DEFENDANTS001274)
G	Definition of “Saver Sub” (DEFENDANTS001380 – DEFENDANTS001382)
H	Definition of “Sub” (DEFENDANTS001383 – DEFENDANTS001384)
I	Definition of “End” (DEFENDANTS001275 – DEFENDANTS001289)
J	Definition of “End” (DEFENDANTS001290 – DEFENDANTS001303)
K	Definition of “End” (DEFENDANTS001304 – DEFENDANTS001318)
L	U.S. Patent No. 9,677,363
M	Office Action – November 12, 2019
N	Amendment – February 12, 2020
O	Definition of “Connected” (DEFENDANTS001257 – DEFENDANTS001263)
P	Definition of “Connected” (DEFENDANTS001264 – DEFENDANTS001272)
Q	Definition of “Assembly” (DEFENDANTS001216 – DEFENDANTS001225)
R	Definition of “Assembly” (DEFENDANTS001226 – DEFENDANTS001235)
S	Definition of “Communication” (DEFENDANTS001236 – DEFENDANTS001245)
T	Definition of “Communication” (DEFENDANTS001246 – DEFENDANTS001256)
U	Definition of “Possible” (DEFENDANTS001319 – DEFENDANTS001327)
V	Definition of “Possible” (DEFENDANTS001328 – DEFENDANTS001337)

I. INTRODUCTION

Defendants Horizontal Wireline Services, LLC and Allied Wireline Services, LLC (collectively, “Defendants”) submit this brief regarding the construction of the disputed claim terms in U.S. Patent No. 10,844,697 (“the ’697 Patent”) (Ex. A). Defendants’ proposed constructions are consistent with the intrinsic record and the meaning that the disputed claim terms would have to a person of skill in the art (“POSITA”) in the context of the patent and prosecution history. Defendants’ constructions should be adopted.

II. TERMS FOR CONSTRUCTION

The parties have not reached an agreement on the construction for any term from the ’697 Patent. The terms that are in dispute are each addressed below.

A. “tandem seal adapter” (claims 1, 8, 9)

Defendants’ Construction	DynaEnergetics’ Construction
“an adapter configured to form a seal between two gun carriers or tools that are directly attached to each other”	No construction needed; plain and ordinary meaning

DynaEnergetics’ *own* expert has repeatedly acknowledged that “the term ‘tandem seal adapter’ is not a common or accepted industry term.” Ex. C, Decl. of John Rodgers, Ex. 2001 to PGR2021-00078 at ¶ 91; *see also* Ex. D, Decl. of John Rodgers, Ex. 2002 to PGR2020-00080 at ¶ 40; Ex. E, Decl. of John Rodgers, Dkt. 34-1 from 3:21-cv-00192-M at ¶ 55. Defendants’ expert, Dr. D. Nathan Meehan, agrees. Ex. B, Decl. of D. Nathan Meehan, at ¶ 43 (“[t]andem seal adapter’ is not a common or accepted industry term.”). Given that this is a coined term without an accepted meaning, this term should be construed “only as broadly as provided for by the patent itself.” *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004); *see also Indacon, Inc. v. Facebook, Inc.*, 824 F.3d 1352, 1357 (Fed. Cir. 2016) (“these terms have no

plain or established meaning to one of ordinary skill in the art. As such, they ordinarily cannot be construed broader than the disclosure in the specification”).

The ’697 Patent illustrates three assemblies that include a “tandem seal adapter” component. *See* Ex. A at FIGS. 19, 32, and 33. In each drawing, the “tandem seal adapter 48” is disposed at least partially within a first “outer gun carrier 12” and between the first outer gun carrier 12 and either a “second” (or “subsequent” or “next”) “gun assembly” or another tool (such as a “sub”), which in either case is directly attached to the first outer gun carrier 12 (by “threading” the subsequent gun assembly or sub onto the first gun assembly). Ex. A at 6:64-7:1, 8:1-3, 10:6-17; *see also* Ex. B at ¶ 46. According to the ’697 Patent, “the tandem seal adapter 48 seals the gun assemblies from each other along with the bulkhead 58, and transmits a ground wire to the carrier 12.” Ex. A at 7:64–66. In particular, in each of the drawings, one of “sealing means 60” (i.e., one of the “o-rings”) is disposed between the tandem seal adapter 48 and the first outer gun carrier 12, and a second of the o-rings is disposed between tandem seal adapter 48 and the outer gun carrier. *See* Ex. A at 7:60-63.

In addition, Defendants’ proposed construction of “tandem seal adapter” is different than a “sub,” which is a commonly used term in the art. *See* Ex. B at ¶ 47. In particular, a sub is “a short section of pipe or a short tool connected in line with other tubulars or tools” and typically has “approximately the same external diameter as the cylindrical members above and below the sub.” *Id.*; *see also* Exs. F (definition of “sub”), G (definition of “saver sub”), H (definition of “sub”). The ’697 Patent repeatedly uses the term “sub” to refer to something entirely different than the “tandem seal adapter.” *See, e.g.*, Ex. A at 4:33–34, 4:39–42, 4:59–64, 9:4-17, 10:4–17, FIGS. 20, 23, 24, 33; *see also* Ex. B at ¶¶ 47-48. When the patentee intended to refer to a component as a “sub,” it knew how to do so. *Id.* In contrast to a “sub,” the “tandem seal adapter”

coined in the '697 Patent is fully enclosed and internal to the drill string (i.e., internal to the outer gun carriers and/or the subs). *See* Ex. B at ¶ 48. Thus, the “tandem seal adapter” of the '697 Patent refers to a component that provides a seal between two directly connected gun carriers or tools.

Given that DynaEnergetics has already represented that “tandem seal adapter” is not a common or accepted industry term, it is improper and illogical for DynaEnergetics to now insist that the term be given its “plain and ordinary meaning.” By its own admission, there is no such plain and ordinary meaning. This is a coined term that should be construed “only as broadly as provided for by the patent itself.” *Irdeto Access*, 383 F.3d at 1300. Accordingly, the Court should reject DynaEnergetics’ attempts to broaden the term through ambiguity.

B. “first end” / “second end” (claims 1, 9)

Defendants’ Construction	DynaEnergetics’ Construction
“first furthest or most extreme part, point, or edge lengthwise” / “second furthest or most extreme part, point, or edge lengthwise”	No construction needed; plain and ordinary meaning

Claim 1 recites a tandem seal adapter having “a first end” and “a second end.” The intrinsic record makes clear that “first end” and “second end” refer to the outermost edges of the tandem seal adapter, when viewed lengthwise within the perforation tool string, consistent with the common meaning of the word “end” as evidenced by various dictionaries. *See* Exs. I-K (dictionary definitions of “end”). DynaEnergetics, while arguing for no construction, has asserted that regions other than the outermost edge of the tandem seal adapter, such as the middle region, can constitute the “end.” Construction of these terms is thus needed to resolve the parties’ disputes as to their scope. *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1361-62 (Fed. Cir. 2008).

The tandem seal adapter of claim 1 has “a bore that extends *from the first end to the second end* and entirely through the tandem seal adapter.” *See* Ex. A at 11:21–23;¹ *see also* Ex. B at ¶ 97. Figure 25, annotated below, shows the tandem seal adapter with a bore (represented by red lines) extending from the first end to the second end (with each end being represented by a blue line). Thus, consistent with the normal usage of the word “end,” the “first end” and “second end” of the tandem seal adapter (i.e., the regions between which the bore extends), are the furthest or most extreme parts, points, or edges of the tandem seal adapter lengthwise.

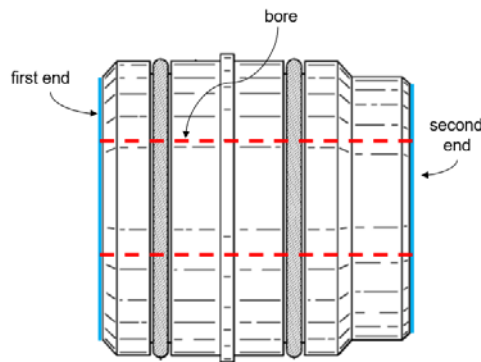
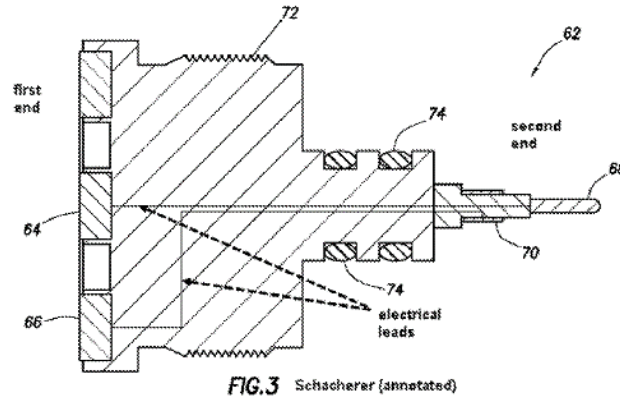


FIG. 25

This meaning was confirmed during prosecution, where DynaEnergetics applied Defendants’ construction of “end” to overcome the prior art. In particular, during prosecution the Examiner rejected the claims as anticipated by U.S. Patent No. 9,677,363 to Schacherer (Ex. L). *See* Ex. M (11/12/2019 Office Action) at 2-4. The Examiner identified Schacherer’s electrical coupler 62 as the claimed “pressure bulkhead” and identified pins 64, 66, 68, and 70 as comprising the claimed “pin connector assembly.” *Id.* The Examiner’s annotated figure of Schacherer is reproduced below:

¹ All emphasis in quoted phrases has been added unless otherwise indicated.

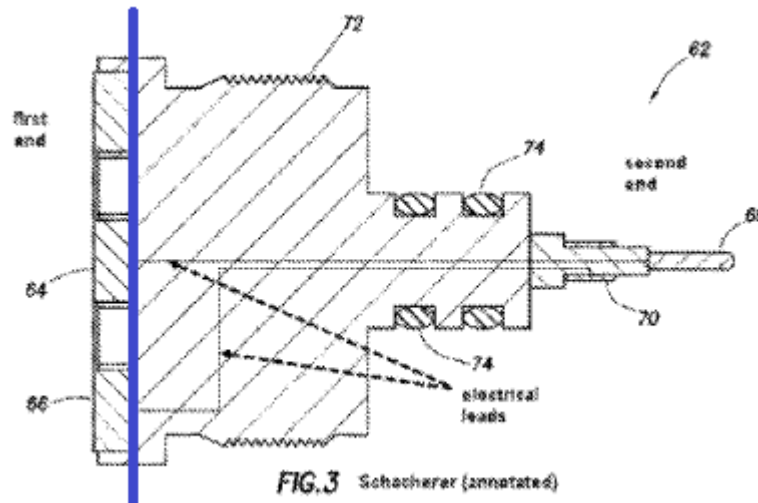


In response, claim 1 was amended to replace “inner end” and “outside end” with “first end” and “second end,” respectively. *See* Ex. N (02/12/2020 Amendment) at 2. The response stated “[t]he clarifying amendments **do not change the scope** of the claims,” and “[c]laims 1, 12, and 13 are currently amended to replace the phrases ‘inner end’ and ‘outside end’ of the tandem seal adapter with ‘first end’ and ‘second end.’” *Id.* at 8.

The claim was also amended to include the limitation that: “the first pin connector end extends beyond the first end of the pressure bulkhead and the second pin connector end extends beyond the second end of the pressure bulkhead.” *Id.* at 2. The response further stated that “[t]he electrical coupler 62 has a ‘first end’ (according to the Examiner’s annotated figure, above) that **does not** include a pin connector end wherein the pin connector end extends **beyond the ‘first end’** of the electrical coupler 62.” *Id.* at 10. In other words, the ends of pins 64 and 66 were flush with the outermost edge lengthwise of Schacherer’s electrical coupler 62 and did not extend beyond that outermost surface.

In view of these comments, the claim’s reference to an “end” of a physical component must mean the outermost edge. For example, in the annotated image below, the “first end” cannot mean the blue line (or the region between the blue line and the leftmost edge) based on the prosecution statement that Schacherer “does not include a pin connector end wherein the pin connector end

extends beyond the ‘first end’ of the electrical coupler 62,” even though pins 64 and 66 appear to sit in recesses within coupler 62:



Thus, the prosecution history requires the “end” to be the outermost surface lengthwise. This also comports with how this term is used in the specification. *See, e.g.*, Ex. A at 7:35-46 and FIGS. 11-12 (illustrating the “first end 242” and “second end 244” of the top connector 14) and 8:53-62 and FIG. 5 (illustrating the “first end 51a” and “second end 51b” of the pins 50). In addition, this construction is how “end” would be understood by a POSITA. *See* Ex. B at ¶ 97.

A certain meaning was argued to overcome the Examiner’s rejection and secure allowance of the claims. By proposing a construction of plain and ordinary meaning, DynaEnergetics seeks to avoid this reliance and preserve the ability to argue a broader meaning applies. The Court should reject this attempt and construe this term consistent with the common meaning, as informed by the prosecution history and the specification.

C. “connected to” (claims 1, 9)

Defendants’ Construction	DynaEnergetics’ Construction
Plain and ordinary meaning; no construction necessary	Plain and ordinary meaning, which is “joined or coupled in a manner that resists separation and not merely by physical contact”

Claims 1 and 9 recite that the gun carrier is “connected to” the first/second end of the tandem seal adapter. Ex. A at 11:28–29 and 12:30–31. Defendants agree that the plain meaning of “connected to” can be “joined or coupled together.” *See, e.g.*, Exs. O, P (dictionary definitions of “connected”); *see also* Ex. B at ¶ 116. However, DynaEnergetics’ proposed construction goes a step further by specifying the “manner” of that connection—that it “resists separation” and is “not merely by physical contact.” DynaEnergetics’ proposed language is problematic in that it adds ambiguity for no apparent reason.

First, DynaEnergetics’ proposed construction does not specify what it means to “resist separation” or provide any guidance on how much resistance is adequate. For example, something may “resist separation” when pulled apart by human hands but easily separate when pulled apart by a machine. DynaEnergetics’ construction does not explain what level of force serves as the threshold of when something “resists” separation. Similarly, DynaEnergetics’ proposal does not explain what type of force the “connected” pieces must be resistant to. For example, a bolt threaded onto a nut may “resist separation” when pulled in the lateral direction, but conversely, may separate easily when the bolt/nut is rotated (i.e., unscrewed) as they are designed to do. Here, the ’697 Patent is totally silent on this issue and never references the concept of “resisting separation.” *See* Ex. B at ¶¶ 118-120.

Instead, the ’697 Patent uses the term “connected to” in reference to many different types of connections, such as to describe a detonation cord “connected to” the top carrier, a through wire connector element “connected to” the through wire, a dual spring pin connector assembly “connected to” the through wire, and a detonator electrically “connected to” the pin connector assembly. Ex. A at 5:46-48, 8:15-17, 8:40-42, 12:62-63. All of these are examples of elements

that are “connected,” within the ordinary and usual meaning of the term, without any requirement that they also resist separation. *See* Ex. B at ¶¶ 119, 120.

If DynaEnergetics’ extra limitation is adopted, the jury will have no basis to determine whether something adequately resists separation or not. Such a definition is contrary to the patent regime’s goal to minimize “zone[s] of uncertainty” and provide clear notice of what is claimed. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

Equally problematic, the phrase “not merely by physical contact” narrows the claim scope by exclusion without any support in the specification. Under the law, the Court “must find support either in the words of the claim or through express disclaimer or independent lexicography to justify adding that negative limitation.” *Ethicon LLC v. Intuitive Surgical, Inc.*, 847 F. App’x. 901, 907 (Fed. Cir. 2021) (citation and internal quotes omitted). In this case, neither the claim nor the specification defines the term “connected” to require more than physical contact, and there was no discussion during prosecution regarding that concept. As a result, there is no basis to import a negative limitation into the claim.

Additionally, DynaEnergetics’ proposed construction does not provide any guidance as to what it means to resist separation “merely by physical contact” as opposed to “not merely by physical contact.” Presumably, DynaEnergetics seeks to exclude connections that rely on frictional forces (which are the product of physical contact). However, DynaEnergetics’ own expert has already opined that the pressure seal provided by the tandem seal adapter of the ’697 Patent is “achieved here by the depicted O-rings,” which provide frictional resistance to separation. Ex. E at ¶ 37. Similarly, a threaded connection resists separation merely by physical contact (i.e., it does not use any chemical adhesive or welding to keep the two parts together). However, it is unclear whether DynaEnergetics is seeking to exclude threaded connections. As a result,

DynaEnergetics' construction would only add more uncertainty to the scope of the asserted claims. For the above reasons, the Court should reject the extra language proposed by DynaEnergetics.

D. “pin connector assembly” (claim 1)

Defendants' Construction	DynaEnergetics' Construction
“a plurality of parts that are fitted together to form a component with pins for electrically connecting two guns or tools”	No construction needed; plain and ordinary meaning

Like “tandem seal adapter,” the term “pin connector assembly” is not a common or accepted industry term. Ex. B at ¶ 57. Construction is necessary to assist the jury in understanding the meaning of this coined term and to resolve a dispute between the parties concerning its scope.

For instance, the parties dispute whether the “pin connector assembly” must be composed of a plurality of parts that are fitted together. In view of the common meaning of “assembly,” as well as the intrinsic record, Defendants submit that the “pin connector assembly” must be composed of multiple parts. The word “assembly” is exactly the type of “commonly understood word[]” that can be construed with “little more than the application of the widely accepted meaning.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). Here, the widely accepted meaning of “assembly” makes it clear that the “pin connector assembly” is a **plurality of parts** that are fitted together to form a component. *See Safe Bed Techs. Co. v. KCI USA, Inc.*, No. 02 C 0097, 2004 WL 2044277, at *5 (N.D. Ill. Sept. 8, 2004) (construing “patient support assembly” as requiring a plurality of parts and rejecting a construction that “assembly” could include a solitary component because it would render “assembly” superfluous); *see also* Ex. B at ¶ 60, 67. That an “assembly” must be assembled from multiple parts is universally consistent with various dictionaries, various commercially available products, and common sense. *See, generally*, Exs. Q, R (dictionary definitions of “assembly”); *see also* Ex. B at ¶¶ 58-59.

Defendants’ proposed construction captures all embodiments in the ’697 Patent. For example, the ’697 Patent states “the bulkhead 124 includes spring connector end interfaces comprising contact pins 126A, 126B, linked to coil springs 128A, 128B. This dual spring *pin connector assembly* including the bulkhead 124 and coil springs 128A, 128B is positioned within the tandem seal adapter 48.” Ex. A at 8:34–38, FIG. 32; *see also* Ex. B at ¶¶ 60-63. In contrast, when patentee intended to describe a single-piece pin (i.e., not an assembly), the specification of the ’697 Patent simply uses the word “pin.” *See, e.g.*, Ex. A at 7:30-34, 8:34-36; *see also* Ex. B at ¶¶ 60-66.

Defendants’ construction is also consistent with other uses of “assembly” in the ’697 Patent. For example, the ’697 Patent states that the tandem seal adapter “fully contains the bulkhead *assembly* 58 (comprised of *multiple small parts* as shown, for instance, in Fig. 19) and that is reversible such that it has no direction of installation.” Ex. A at 8:4-8; *see also* Ex. B at ¶ 65. Similarly, the patent itself describes that the field of invention is “various perforation gun *components* that can be modularly *assembled* into a perforation gun system.” Ex. A at 1:25-27.

The remaining aspects of Defendants’ construction of the “pin connector assembly”, i.e., “pins for electrically connecting two guns or tools,” are equally clear from claim 1 and the specification. Construction of these additional aspects would be helpful to explain this term to a jury since, as mentioned, this is not a common or accepted industry term. Ex. B at ¶ 57.

As discussed above, the “pin connector assembly” includes contact pins 126A and 126B. Moreover, claim 1 recites that “the first detonator is in electrical communication with the pin connector assembly,” which is “configured to relay an electrical signal from the first end of the pressure bulkhead to the second end of the pressure bulkhead.” *See* Ex. A at 11:43-44 and 11:36-38. Claims 9 and 10 further highlight the purpose of this configuration: the “second pin connector

end is in wireless electrical contact with the bulkhead connector element” which is likewise in “electrical communication with a second detonator positioned within the second outer gun carrier.” *See id.* at 12:33–38.

Moreover, DynaEnergetics’ own expert agrees with Defendants’ construction. In a previous declaration, Dr. Rodgers stated that the ’697 Patent “shows and describes a pin connector assembly as shown, for instance, in Fig. 32, as an electrical connection assembly *including contact pins 126A, 126B* with respective ends *configured for connecting to electrical connectors in adjacent perforation guns in a tool string.*” *See* Ex. C at ¶ 112.

Defendants’ proposed construction captures the full intended scope of the “pin connector assembly” term and resolves the parties’ dispute about the meaning of “assembly.” Accordingly, the Court should adopt Defendants’ construction.

E. “first pin connector end” / “second pin connector end” (claims 1, 2, and 9)

Defendants’ Construction	DynaEnergetics’ Construction
“first furthest or most extreme part, point, or edge lengthwise of the pin connector assembly” / “second furthest or most extreme part, point, or edge lengthwise of the pin connector assembly”	No construction needed; plain and ordinary meaning

Claim 1 recites a pressure bulkhead “having a pin connector assembly extending through the pressure bulkhead from a first pin connector end to a second pin connector end.” Ex. A at 11:33–36. Defendants’ construction clarifies that these ends are the first and second ends, respectively, of the claimed pin connector assembly. *See* Ex. B at ¶ 75. The word “end” is construed as above in Section II.B.

As explained above in Section II.B, claim 1 was amended to include the limitation that “the first pin connector end extends beyond the first end of the pressure bulkhead and the second pin connector end extends beyond the second end of the pressure bulkhead.” Ex. N at 2. The patentee

argued that “[t]he electrical coupler 62 has a ‘first end’ (according to the Examiner’s annotated figure, above) that does not include a pin connector end wherein the pin connector end extends beyond the ‘first end’ of the electrical coupler 62.” *Id.* at 10. As discussed above in Section II.B, the “pin connector end” that is referenced here is the end of the pin connector assembly.

The specification of the ’697 Patent does not use the terms “first pin connector end” and “second pin connector end,” but the specification does describe the contact pins 126A, 126B as representing the ends of the pin connector assembly. *See, e.g.*, Ex. A at 8:34-40, FIGS. 32, 33; *see also* Ex. B at ¶¶ 73-74.

Thus, the prosecution makes clear that the first/second pin connector end is the first/second end of the pin connector assembly—i.e., that the furthest or most extreme part, point, or edge lengthwise of the pin connector assembly extend beyond the ends of the pressure bulkhead. *See also* Ex. B at ¶ 75. Accordingly, the Court should adopt Defendants’ proposed construction.

F. “in electrical communication with” (claims 1, 10)

Defendants’ Construction	DynaEnergetics’ Construction
“receives the electrical signal directly from”	No construction needed; plain and ordinary meaning

Claim 1 recites “the first detonator is in electrical communication with the pin connector assembly,” and claim 10 recites “the bulkhead connector element is in electrical communication with a second detonator positioned within the second outer gun carrier.” Construction of this term is necessary to resolve the parties’ disputes regarding (1) whether “electrical communication” requires the detonator to receive a signal (which necessarily includes information) rather than just electrical power; and (2) whether “in electrical communication with” requires a direct connection between the pin connector assembly and the detonator.

On the first point, the common and accepted meaning of “communication” is the exchange of “information.” Ex. B at ¶ 79; Exs. S, T (dictionary definitions of “communication”). As Dr.

Meehan explains, “[o]ne hallmark of a ‘communication,’ as reflected in the above dictionary definitions, is that the ‘communication’ includes the conveyance of ‘information,’ not just electricity or power.” Ex. B at ¶ 80. Dr. Meehan further explains that, in the context of modern perforating guns, including the ’697 Patent, a “signal” originates at the surface and signifies which section(s) of the gun should fire, and when. *Id.* at ¶ 81. This “signal” constitutes a communication in that it is not simply an electrical current but also includes information. *Id.* at ¶¶ 80-82. Thus, when the ’697 Patent refers to two components being “in electrical communication with” one another, a POSITA would understand that this means a signal carrying information, and not just power, is passed between the two elements. *Id.*

The intrinsic evidence supports Defendants’ construction. While the phrase “electrical communication” does not appear in the ’697 Patent outside of the claims, the ’697 Patent consistently describes the connection between the detonator and the pin connector assembly or bulkhead connector element as one in which a *signal* (i.e., information) is passed directly between the two components. For example, Figure 32 shows the pin connector assembly in communication with the detonator assembly (26) through the direct contact between the bulkhead connector element (118) of the detonator and the contact pin of the bulkhead (126A). Ex. A at 8:31-42; FIG. 32. Similarly, Figure 19 shows a pin (unlabeled) at one end of the bulkhead assembly (58) communicating through a direct contact with the detonator assembly (26). *See* Ex. A at 7:58-8:3; FIG. 19. This connection between the pin connector assembly and the detonator involves the transfer of a signal through what is referred to as a “signal-in” wire (108) in the detonator assembly that connects to the bulkhead assembly through the bulkhead connector element. *See* Ex. A at 8:9-22, FIG. 27; *see also* Ex. B at ¶ 85. Thus, in all configurations described in the specification, the

“communication” between the detonator and the bulkhead assembly involves the detonator receiving a signal directly from the bulkhead assembly.

The prosecution history also supports Defendants’ construction. During prosecution, claim 1 was amended to replace the phrase “the detonator *configured to receive the electrical signal* from the pressure bulkhead” with the phrase “the detonator is *in electrical communication* with the pin connector assembly,” which was the first time the phrase “in electrical communication” appeared in the ’697 Patent.² Ex. N at 2. In making this amendment, the patentee stated “[c]laims 1, 2, 4, 5, 7, 8, 12, 13, 18, 19, and 20 are currently amended to, among other things, clarify certain language as follows. The clarifying amendments *do not change the scope of the claims.*” *Id.* at 8. The patentee’s statement confirms that the detonator being “in electrical communication with” the pin connector assembly, in effect, means that the detonator receives the electrical signal (i.e., the electrical impulse carrying information) from the pin connector assembly.

In this same Amendment, the patentee argued against a rejection under 35 U.S.C. § 102 based on Schacherer (Ex. L) by stating that “claim 1 is further amended to, among other things, recite ‘the detonator is in electrical communication with the pin connector assembly’ in view of the quoted feature(s) in amended claim 1 in view of Schacherer, as discussed above.” Ex. N at 10.

Schacherer is directed to a perforating gun assembly in which the detonators 38 are electrically connected to “a selective firing module 32,” which is individually addressable (e.g., with each module having a unique IP address), so that a predetermined signal will cause firing of a respective selected one of the explosive assemblies. Ex. L at 2:48-3:10, 7:33-35; *see also* Ex. B at ¶¶ 88-89. Each “selective firing module 32 includes a demodulator 116, a memory 118 and a

² In claim 1, the pin connector assembly extends through the bulkhead to relay “*an electrical signal*,” which was the antecedent basis for “the electrical signal” in the pre-amended claim.

switch 120,” and “demodulator 116 demodulates the signals transmitted via the conductor 34. If the signal matches the predetermined signal stored in the memory 118, the switch 120 is closed to thereby transmit electrical power to the electrical detonator 38.” Ex. L at 7:37-46; *see also* Ex. B at ¶¶ 88-89. This is illustrated in the below figure from Schacherer:

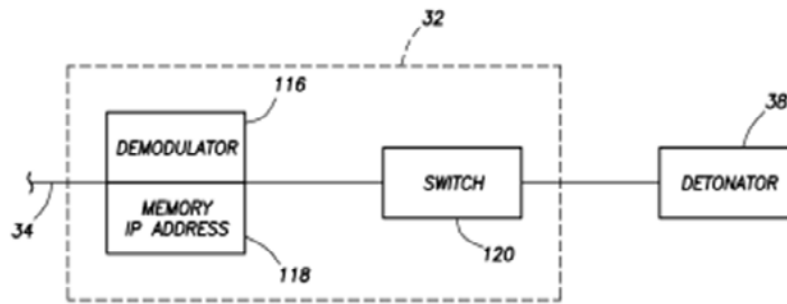


FIG. 9

Thus, according to Schacherer, the signal (with the information) is communicated to the switch, not the detonator, and the detonator receives only electrical power, not the signal itself. *See* Ex. L at 7:37-46; Ex. B at ¶¶ 88-89. The patentee argued that claim 1 is distinguishable from Schacherer because the detonator is “in electrical communication with” the pin connector assembly. Ex. N at 10. This statement, and the accompanying amendment to distinguish Schacherer, confirmed that claim 1 was directed to what the ’697 Patent teaches—a detonator that receives a signal directly from the bulkhead assembly—rather than a detonator that receives power indirectly from the bulkhead assembly via a switch like in Schacherer. *See* Ex. B at ¶ 90.

The language of claim 14 also supports Defendants’ construction. Specifically, claim 14 was not amended to add “in electrical communication with” and instead more broadly recites a detonator that is “*electrically connected* to the pin connector assembly.” Ex. A, claim 14. Different claim terms are presumed to have different meanings. *SimpleAir, Inc. v. Sony Ericsson Mobile Commc’ns AB*, 820 F.3d 419, 431 (Fed. Cir. 2016). Thus, “in electrical communication with,” as recited in claims 1 and 10, cannot mean simply “electrically connected.” *See* Ex. B at ¶

86. Instead, consistent the common meaning of “communication,” as well as the statements in the prosecution history, “in electrical communication with” should be construed to mean “receives the electrical signal directly from.”

Accordingly, the Court should adopt Defendants’ proposed construction.

G. “it is not possible to interrupt the electrical signal from the first pin connector end to the second pin connector end” (claim 2)

Defendants’ Construction	DynaEnergetics’ Construction
Indefinite	No construction needed; plain and ordinary meaning

Claim 2 recites the *negative* limitation that “it is *not possible* to interrupt the electrical signal from the first pin connector end to the second pin connector end.” The specification does not explain what it means to be “not possible” to interrupt an electrical signal. Given the inherent ambiguity of this term, and the lack of any guidance in the specification, this term is indefinite.

A patent is indefinite unless the “patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 134 S. Ct. at 2129. The scope of the claims must be “sufficiently definite to inform the public of the bounds of the protected invention.” *Ancora Techs., Inc. v. Apple, Inc.*, 744 F.3d 732, 737 (Fed. Cir. 2014). Any “construction that results in an artisan not knowing” whether a device is within the claim scope or not is “the epitome of indefiniteness.” *Halliburton Energy Services, Inc. v. M-I LLC*, 514 F.3d 1244, 1254 (Fed. Cir. 2008) (quoting *Geneva Pharms., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003)).

The disputed language is facially indefinite because there is no way for an industry participant to determine whether a given gun assembly would satisfy the negative limitation—i.e., that it is “not possible” for the given gun assembly’s electrical connection to be interrupted. *See* Ex. B at ¶¶ 100, 101; *see also* Exs. U, V (dictionary definitions of “possible”). Simply put, a

person has no way to know or confirm whether it is “not possible” for the electrical signal to be interrupted. For example, the electrical signal from the first pin connector end to the second pin connector end could be interrupted through incorrect assembly, failure (e.g., the corrosion of the internal wires or contacts), damage during transportation or operation (e.g., breakage of constituent parts, flooding), or any manner of problem that could arise when the gun assembly (including the pin connector assembly) is “assembled, stored, transported and run in an environment thousands of feet below the surface of the earth.” Ex. B at ¶ 101. Which of these (if any) would bring the gun assembly outside the scope of this claim? There is no way to know. And the ’697 Patent offers no help as it fails to even mention the concept of “interrupting” an electrical signal, much less offer guidance on what it means to be “not possible” to do so.

Here, as in *Halliburton*, “an artisan would not know from one well to the next whether a certain” pin connector assembly “was within the scope of the claims because a wide variety of factors could affect” transmission (or interruption thereof) of an electrical signal between first and second ends of the pin connector assembly. *Halliburton*, 514 F.3d at 1254-55. As the Federal Circuit explained, “[w]hen a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used . . . that construction is likely to be indefinite.” *Id.* at 1255.

This term, when read in light of the specification, fails to give sufficient notice to the public as to whether or not a given gun assembly would satisfy the claim language. Accordingly, the Court should find that claim 2 is indefinite.

H. “bulkhead connector element” (claims 9, 10)

Defendants’ Construction	DynaEnergetics’ Construction
Subject to 35 U.S.C. § 112(f) <u>Function</u> : establish an electrical connection with the second pin connector end of the pressure bulkhead <u>Structure</u> : the exposed surface (118) of the detonator head shown in FIGS. 27, 28, and 30, and equivalents thereof	No construction needed; plain and ordinary meaning

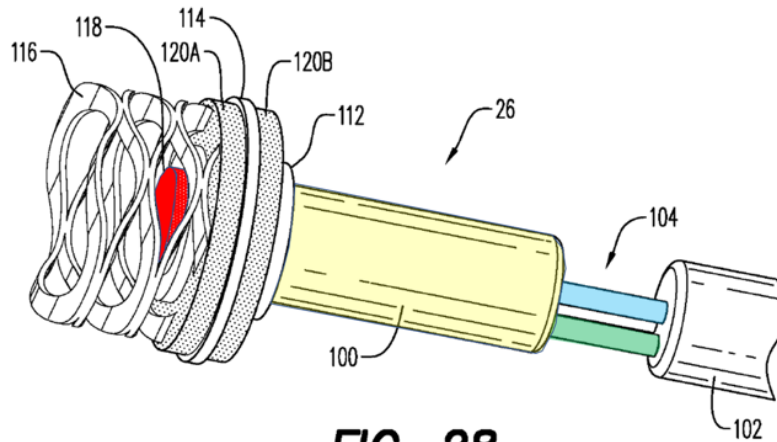
Claim 9 recites “a bulkhead connector element positioned within the second outer gun carrier, wherein the second pin connector end is in wireless electrical contact with the bulkhead connector element.” Ex. A at 12:31–34. Claim 10 further recites “wherein the bulkhead connector element is in electrical communication with a second detonator positioned within the second outer gun carrier.” *Id.* at 12:36–38. The term “bulkhead connector element” does not have well-understood meaning in the art. Ex. B at ¶¶ 104.

“When a claim term lacks the word ‘means,’ the presumption [against being means-plus-function] can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc). “Generic terms like . . . ‘element’ . . . are commonly used as verbal constructs that operate like ‘means,’ to claim a particular function rather than describe[ing] a ‘sufficiently definite structure.’” *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019) (construing “mechanical control assembly” as means-plus-function); *see also Advanced Ground Information Systems, Inc. v. Life360, Inc.*, 830 F.3d 1341, 1347–48 (Fed. Cir. 2016) (construing “symbol generator” as means-plus-function “because it fails to describe a sufficient structure and otherwise recites abstract elements ‘for’ causing actions, [] or elements ‘that can’ perform functions.”); *Rain Computing, Inc. v. Samsung Electronics America, Inc.*, 989

F.3d 1002, 1006 (Fed. Cir. 2021) (construing “user identification module” as means-plus-function since it “has no commonly understood meaning and is not generally viewed by one skilled in the art to connote a particular structure.”).

Here, “bulkhead connector” is merely describing what the nonce “element” does (i.e., its function), namely establishing a connection to the bulkhead (i.e., the second pin connector end extending therefrom). “Bulkhead connector” does not connote any particular structure of the “element,” nor would a POSITA understand that to be the case. Ex. B at ¶¶ 106-112. Rather, like in the cases cited above, the “bulkhead connector element” is a term with no commonly understood meaning that does not connote a particular structure and instead simply describes what the “element” does. Thus, the presumption against application of § 112(f) has been overcome. *Williamson*, 792 F.3d at 1348.

The second step of construing a means-plus-function term is identifying the “corresponding structure” which the intrinsic record “clearly links” to the claimed function. *Id.* at 1352. While the intrinsic record offers very little description of the bulkhead connector element, what little disclosure exists links the function to the structure identified by Defendants. First, in connection with Figures 27-31 and 35A, the specification states “[t]he detonator head 100 further includes . . . a **bulkhead connector element** 118 for connecting the signal-in wire 108 to the bulkhead assembly 58.” Ex. A at 8:15-22. Second, in reference to Figures 32, 33, and 35B, the specification states “dual spring pin connector assembly . . . is positioned within the tandem seal adapter 48 extending from a conductor slug 130 to the **bulkhead connector element**.” Ex. A at 8:37-42. The drawings depict this bulkhead connector element 118 as an exposed surface of the detonator head. Ex. A at FIGs. 27, 28, 30, 32, 33, and 35A. An annotated version of FIG. 28 with the bulkhead connector element highlighted in red is provided below. Ex. B at ¶ 109.

**FIG. 28**

A POSITA would understand this to be the only structure linked to the claimed function of the “bulkhead connector element.” Ex. B at ¶¶ 106-112.

Accordingly, the term “bulkhead connector element” should be construed under § 112(f) with a function of “establishing an electrical connection with the second pin connector end of the pressure bulkhead” and a structure of “the exposed surface (118) of the detonator head shown in FIGS. 27, 28, and 30, and equivalents thereof.”

III. CONCLUSION

Defendants’ proposed constructions accurately capture the meanings of the disputed claim terms in light of the patent claims and specification while giving proper effect to the prosecution history and DynaEnergetics’ prior statements. Based on the foregoing, Defendants ask the Court to adopt their claim construction positions as outlined above.

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Respectfully submitted,

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Dated: October 18, 2021

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CERTIFICATE OF SERVICE

I hereby certify that on the 18th day of October, 2021, I electronically filed the foregoing **DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF** with the Clerk of Court using the CM/ECF system which sent notification to all counsel of record.

THE WEBB LAW FIRM

s/ Bryan P. Clark

Bryan P. Clark